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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/628,357	07/29/2003	Koichi Okawa	240975US90	4490

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EXAMINER

BALAOING, ARIEL A

ART UNIT	PAPER NUMBER
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2617

DATE MAILED: 06/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/628,357

Applicant(s)

OKAWA ET AL.

Examiner

Ariel Balaoing

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 May 2006.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-13 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 29 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 11/14/2005.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

The Art Unit location of your application in the USPTO has changed. To aid in correlating any papers for this application, all further correspondence regarding this application should be directed to Art Unit 2617.

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 05/08/2006 has been entered.

Response to Arguments

2. Applicant's arguments filed 04/10/2006 have been fully considered but they are not persuasive.

3. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., wherein preselected threshold values are dependent on different types of base stations (***see page 8 of the remarks, lines 1-2***)) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Furthermore, the applicant argues "Karlsson clearly does not use any different thresholds for connecting and disconnecting. Karlsson recites "a signal strength

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threshold which is the threshold for sufficient signal strength when served by the cell," and thereby again confirms that there is only one threshold per cell, related to the signal strength" (**see page 8 of the remarks**); the examiner respectfully disagrees. It can be seen on (col. 8, line 43-52 and col. 9, line 41-64) that a hysteresis value is used to prevent a mobile station from rapid handover between two base stations. The hysteresis value can be seen as a different handover threshold value for disconnecting the mobile station, as this value is used together with the signal strength threshold to determine which base station the mobile station connects to.

Furthermore, the applicant argues "Karlsson does not teach or suggest that one of the base stations is capable of a directional beam. To the contrary Karlsson explains that the base stations are equipped with omni-directional antennas." (**see page 8 of the remarks**); the examiner respectfully disagrees. From col. 4, lines 61-66, *However, in other configurations of a cellular radio system, the base stations may be located near the periphery, or otherwise away from the center of the cells and may illuminate the cells with radio signals **either omni-directionally or directionally***. Therefore, the base stations of Karlsson can consist of omni-directional or directional antennas.

Claim Rejections - 35 USC § 102

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
5. Claims 1-3, 8, 9, 12, and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by KARLSSON (US 5,499,386).

Regarding claim 1, KARLSSON discloses a method of connecting a mobile station with a base station via a radio link in a mobile communication system (column 2:line 65-column 3:line 5) including a first base station capable of directional beam signal transmission and reception [directional antenna] (column 4:line 53-column 5:line 4) and a second base station incapable of directional beam signal transmission and reception [omni-directional antenna] (column 4:line 53-column 5:line 4; the invention disclosed can be used with either directional antennas or omni-directional antennas), the method comprising: setting different handover threshold [signal strength threshold] values for connecting the mobile station with the first base station being capable of direction beam and the second station and different handover threshold values for disconnecting the mobile station with the first base station and the second station [hysteresis value], so as to preferentially connect the mobile station to the first base station rather than to the second base station (106-Figure 10, column 2:line 65-column 3:line 54; column 8:lines 43-52; column 9:lines 23-33; column 9:lines 41-64; column 11:lines 9-35).

Regarding claim 2, see the rejections of the parent claim concerning the subject matter this claim is dependant upon. KARLSSON further discloses wherein the step of preferentially connecting the mobile station to the first base station includes: setting different handover threshold values for connecting and disconnecting the mobile station with the first base station and the second station, respectively, when the mobile station undergoes handover (column 3:lines 5-20, column 9:lines 23-33, column 9:lines 41-64,

column 11:lines 9-35; base stations in the neighboring cells have differing preset handoff thresholds).

Regarding claim 3, see the rejections of the parent claim concerning the subject matter this claim is dependant upon. KARLSSON further discloses wherein preferentially connecting the mobile station to the first base station includes: setting different threshold values for connecting and disconnecting the mobile station with the first base station and the second station, respectively, when the mobile station is on standby and switches a connection destination thereof (column 3:lines 5-20, column 9:lines 34-64, column 11:lines 9-35; base stations in the neighboring cells have differing handoff thresholds).

Regarding claim 8, KARLSSON discloses a mobile station in a mobile communication system (abstract) including a first base station capable of directional beam signal transmission and reception [directional antenna] (column 4:line 53-column 5:line 4) and a second base station incapable of directional beam signal transmission and reception [omni-directional antenna] (column 4:line 53-column 5:line 4; the invention disclosed can be used with either directional antennas or omni-directional antennas), the mobile station comprising: a base station connection unit configured to set different handover threshold [signal strength threshold] values for connecting the mobile station with the first base station being capable of direction beam and the second station and different handover threshold values for disconnecting the mobile station with the first base station and the second station [hysteresis value], so as to preferentially connect the mobile station to the first base station rather than to the

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second base station (106-Figure 10, column 2:line 65-column 3:line 54; column 8:lines 43-52; column 9:lines 23-33; column 9:lines 41-64; column 11:lines 9-35).

Regarding claim 9, see the rejections of the parent claim concerning the subject matter this claim is dependant upon. KARLSSON further discloses wherein the base station connection unit sets the different handover threshold values for connecting and disconnecting the mobile station with the first base station and the second station, respectively, when the mobile station is on standby and switches a connection destination thereof (column 3:lines 5-20, column 9:lines 23-33, column 9:lines 41-64, column 11:lines 9-35; base stations in the neighboring cells have differing preset handoff thresholds).

Regarding claim 12, see the rejections of the parent claim concerning the subject matter this claim is dependant upon. KARLSSON further discloses further comprising: a base station determination unit configured to identify and distinguish the first base station from the second base station (column 9:lines 41-64, column 11:lines 22-35; the mobile station tunes to a preferred neighbor when measured signal strength is above a threshold. It is inherently necessary to include a way to distinguish between current base station and neighboring base station during handover).

Regarding claim 13, see the rejections of the parent claim concerning the subject matter this claim is dependant upon. KARLSSON further discloses further comprising: a threshold value receiver configured to receive the threshold values (column 11:lines 50-61; threshold value of neighboring base stations are broadcast to the mobile for calculation).

Claim Rejections - 35 USC § 103

6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

7. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over KARLSSON (US 5,499,386) in view of PALENIUS et al (US 2002/0019231 A1).

Regarding claim 4, KARLSSON discloses a controller for controlling a radio link connection between a mobile station and a base station (column 4:lines 56-58, column 12:lines 17-34) in a mobile communication system including a first base station capable of directional beam signal transmission and reception [directional antenna] (column 4:line 53-column 5:line 4) and a second base station incapable of directional beam signal transmission and reception [omni-directional antenna] (column 4:line 53-column 5:line 4; the invention disclosed can be used with either directional antennas or omni-directional antennas), the controller comprising: a base station connection control unit configured to set different handover threshold [signal strength threshold] values for connecting the mobile station with the first base station being capable of direction beam and the second station and different handover threshold values for disconnecting the mobile station with the first base station and the second station [hysteresis value], so as to preferentially connect the mobile station to the first base station rather than to the second base station (106-Figure 10, column 2:line 65-column 3:line 54; column 8:lines 43-52; column 9:lines 23-33; column 9:lines 41-64; column 11:lines 9-35). However KARLSON does not disclose that the base station controller is a radio network controller. PALENIUS discloses that the base station controller is a radio network

controller (paragraph 17). Therefore it would have been obvious to modify KARLSSON to include a radio network controller as both inventions teach a method and system for handover with defined thresholds in a cellular communication system. This is beneficial in that it would allow the ability to use the handover techniques described in a UMTS system. It is well known in the art that base stations using UMTS protocols must include a radio network controller.

Regarding claim 5, see the rejections of the parent claim concerning the subject matter this claim is dependant upon. KARLSSON further discloses wherein the base station connection control unit sets the different handover threshold values for connecting and disconnecting the mobile station with the first base station and the second station, respectively (column 3:lines 5-20, column 9:lines 23-64, column 11:lines 9-35; base stations in the neighboring cells can have differing preset handoff thresholds).

8. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over KARLSSON (US 5,499,386) in view of PALENIUS et al (US 2002/0019231 A1) as applied to claim 5 above, and further in view of RAMAKRISHNA et al (US 6,233,455 B1).

Regarding claim 6, see the rejections of the parent claim concerning the subject matter this claim is dependant upon. KARLSSON further discloses wherein the handover threshold value for connecting the mobile station with the first base station is larger than the handover threshold value for connecting the mobile station with the second base station (column 9:lines 41-64, column 11:lines 36-44; thresholds for

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differing cells are determined individually and can be chosen to be higher or lower than each other. This threshold is responsible for the connection and disconnection of the mobile between the two base stations). However the combination of KARLSSON and PALENIUS does not disclose wherein the handover threshold value is defined as an absolute value of a difference between power of signals from a handover source base station and power of signals from a handover destination base station. RAMAKRISHNA discloses wherein the handover threshold value is defined as an absolute value of a difference between power of signals from a handover source base station and power of signals from a handover destination base station (column 6:line 59-column 7:line 7). Therefore it would have been obvious to modify the combination of KARLSSON and PALENIUS to adjust the threshold values to be defined as an absolute value of a difference between power of signals from a handover source base station and power of signals from a handover destination base station as both systems deal with improvement of handoff in a cellular communication system. This is beneficial in that it allows the use of measured signal power to determine whether handoff should occur.

Regarding claim 7, see the rejections of the parent claim concerning the subject matter this claim is dependant upon. KARLSSON further discloses wherein the handover threshold value for disconnecting the mobile station with the first base station is larger than the handover threshold value for disconnecting the mobile station with the second base station (column 9:lines 41-64, column 11:lines 36-44; thresholds for differing cells are determined individually and can be chosen to be higher or lower than each other. This threshold is responsible for the connection and disconnection of the

mobile between the two base stations). However the combination of KARLSSON and PALENIUS does not disclose wherein the handover threshold value is defined as an absolute value of a difference between power of signals from a handover source base station and power of signals from a handover destination base station. RAMAKRISHNA discloses wherein the handover threshold value is defined as an absolute value of a difference between power of signals from a handover source base station and power of signals from a handover destination base station (column 6:line 59-column 7:line 7). Therefore it would have been obvious to modify the combination of KARLSSON and PALENIUS to adjust the threshold values to be defined as an absolute value of a difference between power of signals from a handover source base station and power of signals from a handover destination base station as both systems deal with improvement of handoff in a cellular communication system. This is beneficial in that it allows the use of real time measured signal power to determine whether handoff should occur.

9. Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over KARLSSON (US 5,499,386) in view of RAMAKRISHNA et al (US 6,233,455 B1).

Regarding claim 10, see the rejections of the parent claim concerning the subject matter this claim is dependant upon. KARLSSON further discloses wherein the threshold value for switching to the first base station is smaller than the threshold value for switching to the second base station (column 9:lines 41-64, column 11:lines 36-44; thresholds for differing cells are determined individually and can be chosen to be higher or lower than each other). However, KARLSSON does not disclose wherein the

threshold value is defined as an absolute value of a difference between power of signals from a switching source base station and power of signals from a switching destination base station. RAMAKRISHNA et al discloses wherein the threshold value is defined as an absolute value of a difference between power of signals from a switching source base station and power of signals from a switching destination base station (column 6:line 59-column 7:line 7). Therefore it would have been obvious to modify KARLSSON to adjust the threshold values to be defined as an absolute value of a difference between power of signals from a handover source base station and power of signals from a handover destination base station as both systems deal with improvement of handoff in a cellular communication system. This is beneficial in that it allows the use of measured signal power to determine whether handoff should occur.

Regarding claim 11, see the rejections of the parent claim concerning the subject matter this claim is dependant upon. KARLSSON further discloses wherein the threshold value for switching to the first base station is larger than the threshold value for switching to the second base station (column 9:lines 41-64, column 11:lines 36-44; thresholds for differing cells are determined individually and can be chosen to be higher or lower than the other). However, KARLSSON does not disclose wherein the threshold value is defined as an absolute value of a difference between power of signals from a switching source base station and power of signals from a switching destination base station. RAMAKRISHNA et al discloses wherein the threshold value is defined as an absolute value of a difference between power of signals from a switching source base station and power of signals from a switching destination base station (column

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6:line 59-column 7:line 7). Therefore it would have been obvious to modify KARLSSON to adjust the threshold values to be defined as an absolute value of a difference between power of signals from a handover source base station and power of signals from a handover destination base station as both systems deal with improvement of handoff in a cellular communication system. This is beneficial in that it allows the use of measured signal power to determine whether handoff should occur.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ariel Balaoing whose telephone number is (571) 272-7317. The examiner can normally be reached on Monday-Friday from 8:00 AM to 4:30 AM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, George Eng can be reached on (571) 272-7495. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.


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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Ariel Balaoing – Art Unit 2617

AB 6/19/16

AB


GEORGE ENG
SUPERVISORY PATENT EXAMINER